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(54) Title: METHODS AND APPARATUS FOR CHARACTERISING CELLS AND TREATMENTS

(57) **Abstract:** Methods, data processing apparatus and computer program products for characterising cells and the effect of treatments administered to cells are disclosed. In particular methods of identifying bi-nuclear cells are described which include capturing an image of a plurality of marked cells and processing the image to obtain features of the plurality of cells. The features are analyzed to determine whether the features are indicative of bi-nuclear cells. Those cells for which the first feature is indicative of bi-nuclear cells are identified as being bi-nuclear. Three algorithms in particular are described. A first algorithm can be used to determine the number of nuclei in an image of a nuclear component by determining the number of concave regions within the outline of the image. A second algorithm uses a measure of the amount of cytoplasmic material between a pair of nuclei to identify bi-nuclear cells. A third algorithm uses the statistics of the spatial distribution of objects to identify isolated pairs of nuclei which can be considered to be from the same cell.